

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-53. (Canceled)

54. (Previously presented) A method of inducing an immune response against human immunodeficiency virus (HIV) or an HIV epitope in a mammal, the method comprising:

administering to the mammal a nucleic acid composition comprising a plurality of sets of nucleic acid molecules, wherein each nucleic acid molecule in a set encodes an HIV envelope glycoprotein of a type or genetic clade which is different from a type or genetic clade of the HIV envelope glycoprotein encoded by another set of nucleic acid molecules;

and administering to the mammal a protein composition comprising a set of isolated HIV envelope glycoprotein molecules; wherein the nucleic acid composition and the protein composition are administered in amounts sufficient to elicit an immune response against HIV or an HIV epitope in the mammal.

55. (Original) The method of claim 54, further comprising isolating immune cells from the vertebrate mammal; and testing an immune response of the isolated immune cells in vitro.

56. (Original) The method of claim 54, wherein the protein composition is administered after the nucleic acid composition.

57. (Original) The method of claim 56, wherein the protein composition is administered between 4 and 8 weeks after the nucleic acid composition.

58. (Previously presented) The method of claim 54, further comprising testing for a cell-mediated immune response.

59. (Previously presented) The method of claim 54, further comprising testing for a humoral immune response.

60. (Previously presented) The method of claim 59, wherein a neutralizing humoral response.

61-80. (Canceled)

81. (Previously presented) The method of claim 54, wherein a cell-mediated immune response is induced.

82. (Previously presented) The method of claim 54, wherein a humoral immune response is induced.

83. (Previously presented) The method of claim 82, wherein a neutralizing humoral immune response is induced.

84. (Previously presented) The method of claim 54, wherein the nucleic acid molecules comprise DNA plasmids.

85. (Previously presented) The method of claim 54, wherein the HIV envelope glycoproteins encoded by the nucleic acid molecules comprise one or more of gp120, gp140, gp160, and gp41.

86. (Previously presented) The method of claim 54, wherein the nucleic acid composition further comprises a set of nucleic acid molecules encoding an HIV gag protein.

87. (Previously presented) The method of claim 54, wherein the HIV envelope glycoproteins encoded by the nucleic acid molecules comprise an HIV-1 envelope glycoprotein.

88. (Previously presented) The method of claim 85, wherein the HIV envelope glycoproteins encoded by the nucleic acid molecules comprise a gp120 envelope glycoprotein.

89. (Previously presented) The method of claim 54, wherein the HIV envelope glycoproteins encoded by the nucleic acid molecules comprise an HIV envelope glycoprotein from a clade of a major (M) group of clades.

90. (Previously presented) The method of claim 89, wherein the clade is clade A, B, C, D, E, F, G, H, I, J, or K.

91. (Previously presented) The method of claim 54, wherein the HIV envelope glycoproteins encoded by the nucleic acid molecules comprise an HIV envelope glycoprotein from a clade of an outlier (O) group of clades.

92. (Previously presented) The method of claim 54, wherein the HIV envelope glycoproteins encoded by the nucleic acid molecules comprise an HIV envelope glycoprotein from a clade of an N group of clades.

93. (Previously presented) The method of claim 90, wherein the clade is clade B.

94. (Previously presented) The method of claim 93, wherein the envelope glycoprotein is an envelope glycoprotein of a B715 isolate.

95. (Previously presented) The method of claim 90, wherein the clade is clade C.

96. (Previously presented) The method of claim 54, wherein one or more of the sets of nucleic acid molecules comprises optimized codons.

97. (Previously presented) The method of claim 54, wherein the plurality of sets of nucleic acid molecules comprises two or more of the following sets:

a set of nucleic acid molecules, each encoding a human immunodeficiency virus (HIV) envelope glycoprotein of clade A;

a set of nucleic acid molecules, each encoding an HIV envelope glycoprotein of clade B;

a set of nucleic acid molecules, each encoding an HIV envelope glycoprotein of clade C;
and

a set of nucleic acid molecules, each encoding an HIV envelope glycoprotein of clade E;

wherein each set of nucleic acid molecules encodes a primary isolate sequence of the envelope glycoprotein.

98. (Previously presented) The method of claim 54, wherein the protein composition comprises a plurality of sets of isolated human immunodeficiency virus (HIV) envelope glycoprotein molecules, wherein each set comprises HIV envelope glycoprotein molecules of a type or a genetic clade which is different from a type or genetic clade of the HIV envelope glycoprotein molecules of another set

99. (Previously presented) The method of claim 98, wherein the envelope glycoprotein of one or more of the plurality of sets is an HIV-1 envelope glycoprotein.

100. (Previously presented) The method of claim 98, wherein the envelope glycoprotein of each set is selected from the group consisting of gp120, gp140, gp160, and gp41.

101. (Previously presented) The method of claim 100, wherein the envelope glycoprotein of one or more of the plurality of sets is a gp120 envelope glycoprotein.
102. (Previously presented) The method of claim 98, wherein the envelope glycoprotein of one or more of the plurality of sets is from a clade of a major (M) group of clades.
103. (Previously presented) The method of claim 102, wherein the clade is clade A, B, C, D, E, F, G, H, I, J, or K.
104. (Previously presented) The method of claim 98, wherein the envelope glycoprotein of one or more of the plurality of sets is from a clade of an outlier (O) group of clades.
105. (Previously presented) The method of claim 98, wherein the envelope glycoprotein of one or more of the plurality of sets is from a clade of an N group of clades.
106. (Previously presented) The method of claim 103, wherein the clade is clade B.
107. (Previously presented) The method of claim 106, wherein the envelope glycoprotein is an envelope glycoprotein of a B715 isolate.
108. (Previously presented) The method of claim 103, wherein the clade is clade C.
109. (Previously presented) The method of claim 54, wherein at least one of the sets of nucleic acid molecules encodes an HIV envelope glycoprotein comprising a primary isolate sequence.
110. (Previously presented) The method of claim 54, wherein the protein composition comprises HIV envelope glycoprotein molecules comprising a primary isolate sequence.